CASE STUDY

Disseminated gold mine generated US$430,000 additional value in one blast

Commodity	Ore Grades	Geology	Powder Factor	Location
Gold	High and low	Disseminated Sulphide	1.15 kg/m^3	Russia

This disseminated gold mine is one of the top producing open-pit mines in Russia.

- Mineralisation is disseminated in sedimentary schists and shales
- Blasts are fired in a 10 metre bench
- The site contains high grade (3.5 g/t) and low grade ores

Challenges

Substantial movement of ore is not monitored or accounted for

- Dilution, with tonnes of waste being treated as ore
- Misclassification of ore (i.e. high grade ore is stockpiled as low grade or low grade ore is sent to the mill as high grade)
- Ore loss, with gold being sent to the waste pile

Solution

BMM System accurately translated post-blast dig lines

- Blast movement monitors (BMMs) were installed in monitoring holes throughout the shot
- Installation and detection as per site standard operating procedures
- Blast was fired and movement monitored
- BMM Explorer software calculated new dig lines, and areas of ore loss and dilution that would have occurred without monitoring

Results

Value of US$430,000 was added by reducing dilution and misclassification and recovering more ore

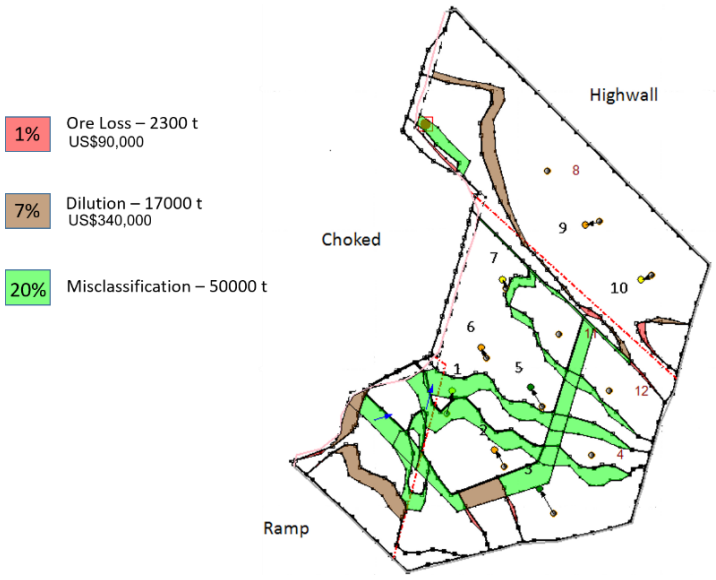
Significant movement occurs within all blasts. Variation of ±50% from the mean horizontal movement is common and occurred in this blast.

- Measured horizontal movement ranges from 2.5 m to 14 m (8 to 46 ft) and vertical movement of up to 4.5 m (15 ft)

As a result of accurately accounting for movement in this blast, the mine:

- Reduced dilution by 7%: 17,000* tonnes of waste were diverted from the mill, saving US$340,000**
- Prevented misclassification of 50,000 tonnes (20%) of ore
- Recovered 1% (72 oz.) of gold, valued at US$90,000***

Monitoring blast movement generated an additional US$430,000.



* Numbers are rounded
** Estimate based on mine milling costs of US$20 per tonne
*** Calculated at a gold price of US$1,250/oz.

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